CANRON
NEWS
CANRON LIMITED 1121 PLACE VILLE MARIE, MONTREAL 113, P.Q.

JUNE 1970 — VOLUME 3, NUMBER 1

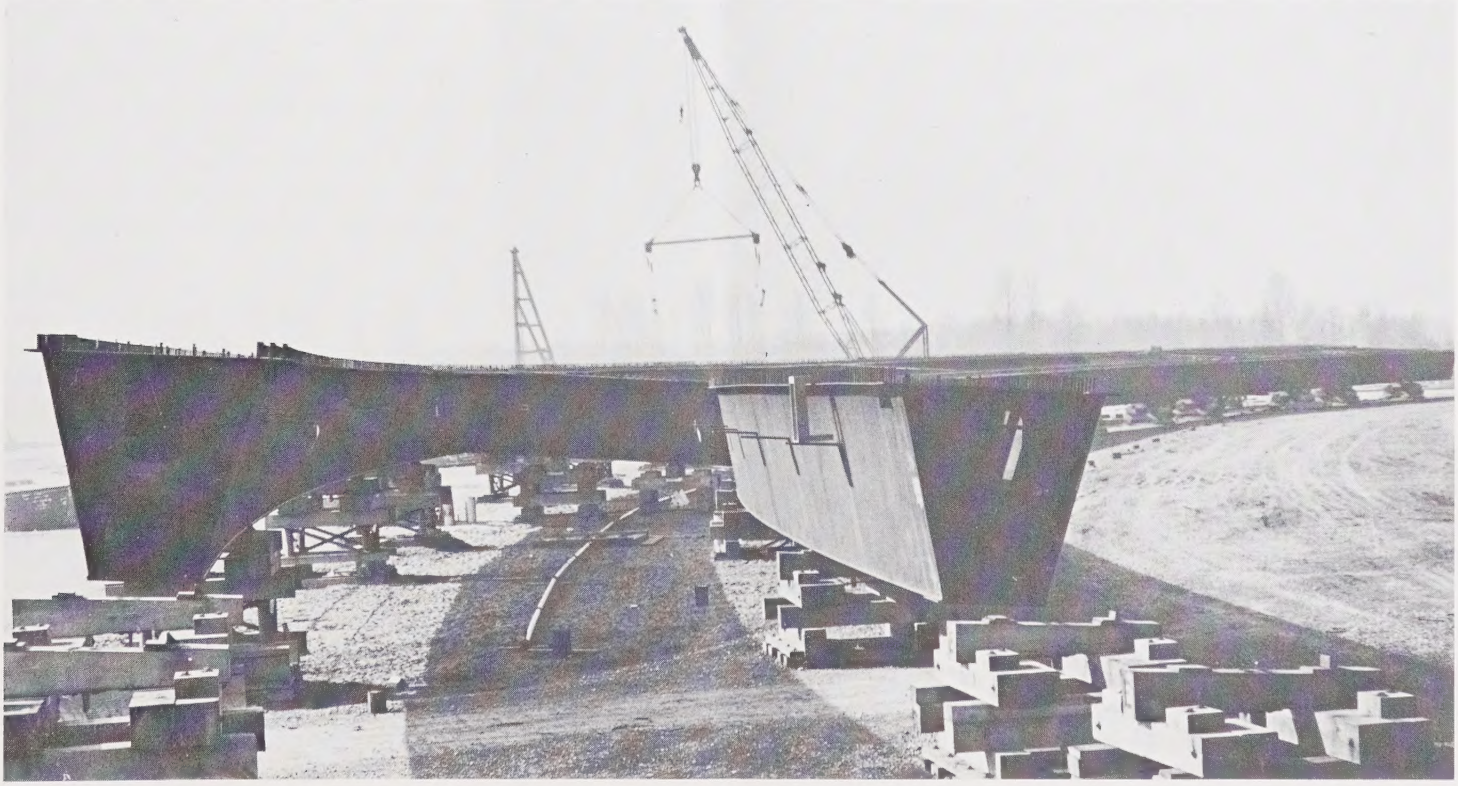
Special Approach to a Special Project

Traditional approaches went out the window when Western Bridge Division of Canron Limited in Vancouver, B.C., started to carry out two multi-million dollar contracts covering 21,600 tons of fabricated steel for interchanges at each end of the new Fremont bridge over the Willamette River in Portland, Oregon.

Designed by Howard, Needles, Tammen and Bergendorff, Consulting Engineers of New York, Kansas City and Seattle, these interchanges provide a high-speed traffic system on the smallest possible area of land. To achieve this dual goal, the designers planned double-deck structures, with traffic on the upper deck going in the opposite direction to lower-deck traffic, and fairly tight but well super-elevated curves.

Complicating the geometry of the steelwork, some of the spirals on the interchanges climb as much as 120 feet. The major fabrication task was the making of over seven miles of precision-made roadway girders in lengths varying from 35 to 142 feet and involving horizontal curves of up to 4 feet offset, camber up to one foot and helical changes up to 5°. Right from the outset, it was obvious to Canron that help from a computer

Gracefully-curving box girder sections for interchanges at the new Fremont Bridge in Portland, Oregon, are being prepared for testing at the new facilities of Canron's Western Bridge Division in Burnaby, just outside Vancouver.



would be needed. The drawing office, fabrication shop and pre-assembly area would require a considerable amount of data that could be used to make physical measurements and hence allow physical creation.

It was also apparent that plant facilities would have to be expanded, especially since specifications called for test-assembly of roadway sections, some of which could be 1,000 feet long.

Floor space was obtained for a Project Office near the main office and plant. Under project manager B. T. Lawry, this office was manned with some 35 engineers, draughtsmen and administrative staff. Twenty-five acres were obtained as an assembly area to be staffed with about 150 men and the necessary cranes, blast cleaning equipment, paint shop, and administrative personnel to get the job done. This was christened "Canron Plant No. 2".

Canron Plant No. 1, at the same time, added new equipment and re-arranged its layout to meet the new demands. Access to a mathematical system computer in the United States

Test-assembly of interchange steelwork will get thorough check by experts of Pittsburgh Testing Laboratories, then be taken apart for blast-cleaning, painting and shipment to site of new Fremont Bridge interchanges, Portland, Oregon.

Giant girders for interchanges at Oregon's new Fremont Bridge are mounted in turning rings at Canron's No. 1 Plant in Vancouver. Once in the rings, the girders can be rotated to handy positions for welding.

was obtained last year and, in July, Canron started to feed it questions. Ever since, a steady stream of data has been flowing back. One radical departure was initiated when computer-data showed that detail-drawings, as previously understood, could be eliminated. Final assembly drawings now show only those dimensions needed for the overall check. Individual detail sketches and layout drawings provide information in the form of offsets or scale readings that apply to the various jigs.

Canron's Plant No. 1 is scheduled to produce one box girder of approximately 90 feet in length a day. An average 12 such girders will make up one complete "unit" which is pre-assembled with floor beams, etc. to precise overall length requirements. As the girders arrive in Plant No. 2, the assembly shop, they are laid out precisely to curve and elevate progressively until at the end of twelve days a unit is laid out. Fourteen days later, all the necessary holes are drilled, etc. and the unit can be taken apart. In the meantime, another 14 girders have arrived from the fabrication shop and a second unit is laid out alongside the first. At the peak of production, seven units will be in various stages of assembly at any given moment. Prior to being taken apart, each assembly is checked for accuracy by the staff of Pittsburg Testing Laboratories, the inspection agency. It is then blast cleaned, painted and readied for shipment. One girder a day being sufficient to maintain schedule for only one of the two interchanges, Canron has contracted with Yawata Iron and Steel Co. Ltd. of Tokyo through the Mitsui group for the supply of partially fabricated girders for the second interchange. These are being shipped to Canron's Plant No. 2 for further fabrication, assembly with other components, drilling, geometry check, disassembly and painting.

Barge shipment was found to be the practical means of sending the steel to the site. Gulf of Georgia Towing Company of Vancouver have contracted with Canron to move the steel to Portland.

Canron won the two steel-fabrication contracts in April and October 1969. Final shipment of steel, it is expected, will be made in May 1971. General contractors for the West Interchange of the Fremont Bridge are Andersen-Hannan of Portland; for the East Interchange, Drake-Willamette Venturers, also of Portland. Willamette Western Corporation will erect the steel.

Steel for Float Glass

For the new plant of Pilkington Brothers (Canada) Ltd. in Scarborough, Ontario, the Eastern Structural Division of Canron is providing more than 3,200 tons of steel. Most of the steelwork is going into the buildings, but part of the order is being used for equipment supports.

The new plant will use the float glass process, a revolutionary method of glass-making developed in England. This is Pilkington's second float glass plant in Scarborough and will bring the company's total capacity to over 6,000 tons a week.

Successful execution of the steel contract hinged upon tight and accurate scheduling of deliveries, in close co-operation with the project managers, H. G. Acres & Co. Ltd.

Modern Water Delivery System for Okanagan Valley

Picturesque, vital, but forever in need of care — that's the story of those painfully-built wooden and concrete irrigation flumes that wind crookedly down the slopes of British Columbia's Okanagan Valley, carrying water from mountain lakes to the lush orchard lands.

Rapidly, these straggling structures are vanishing; they are giving way to modern, carefree, underground waterlines.

Without irrigation, many parts of the lush Okanagan would be barren, despite the imposing presence of Lake Okanagan. Average rainfall is only 10 inches a year, and in the Osoyoos area not far from the United States border, land without water might soon become a desert. High in the mountains that tower on each side of the valley, however, mountain lakes and little streams hold plentiful supplies of water.

Tapping these mountain reservoirs by way of the old wooden flumes and timber-supported concrete has gradually become a more and more costly undertaking, to the point that few landowners could afford the maintenance charges.

As the problem became acute and widespread, a truly cooperative effort at a solution was launched by the Federal and Provincial governments, together with various local bodies, industry and individuals. For approved projects, costs are being shared by the two governments and the local organizations concerned.

Canron's Hyprescon concrete pressure pipe being installed at Okanagan Valley, B.C.

Canron, Pipe Division, was chosen as a supplier of large size Ductile iron and Hyprescon concrete pressure pipe for a number of the larger rehabilitation projects now being carried out and pipes are rapidly going into their long-lived service, underground.

Not only will the orchards benefit from the new lines — the modern automatic water delivery systems will provide a fully pressurized domestic supply to meet the needs of the rapidly growing population in the area. Forecasts have been made that the population of the valley will double within ten years and traditional water storage areas will need to be augmented by supplies from distant locations.

A recent announcement that the Federal and Provincial governments will participate in a joint water use survey study, at an estimated cost of two million dollars, designed to plan the most economical long term use of water in the area is proof enough of the future growth foreseen for this area.

What in the world could a railway commuter car, a mine in the Yukon wilderness, and a Maritime fish farm ever have in common? Dependable prime power from Canron generators.

Two-Storey Commuter Cars

Double-deck rail cars, put into Montreal's Lakeshore commuter services by CP Rail this spring, represent a new concept in mass tranportation. Spacious, lightweight, fast and comfortable, each car also embodies a 75-KW Tamper generator designed and manufactured by Canron, Electrical Division.

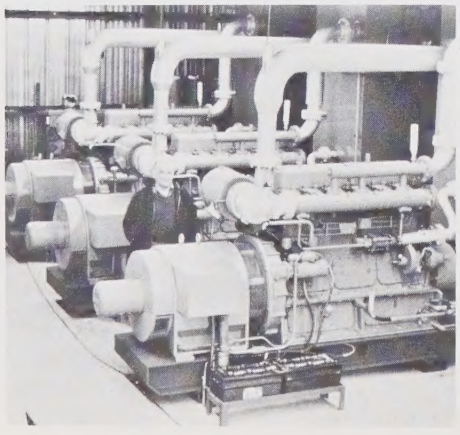
In drawing up plans for these rail-car generators, the designers were quick to note that a prime requirement was protection — from snow, water, dirt, dust, oil, seeds, flying gravel, and any other contaminants along the right of way. Accordingly, the new generators are thoroughly shielded from foreign elements. At the same time, the modern design eliminates collector rings and brushes, so that altogether the improvements reduce maintenance to an absolute minimum.

Diesel-driven, the rail-car Tamper generators provide electricity for air-conditioning, fluorescent lighting, and heating. Both the generator and the diesel are of low profile design to fit into the limited space under the car, where the generator is mounted upside down.

Nine cars, built by Canadian Vickers Ltd., introduced the double-decker service. With these trains, there's no need for turn-around; the engine pulls one way, and pushes coming back. Only the engineer turns around — the back of the train becomes a control car, and the engineer operates the engine by remote control. Inside the cars, the lower level provides two rows of double seats, while the upper deck has two rows of single seats, one on each side of the train.

At 60 below zero, no margin for error

When it's 60 below zero during the winter, and when help is a long way off, a completely dependable power system is certainly a necessity. At the Mount Nansen mine in the Yukon, the staff and crew rely upon three heavy duty 250-KW Tamper generators, running in parallel, to provide electricity for the mine's 400-ton-a-day concentrator, for the camp which is a half mile away, and for the water supply pumps which are three miles away.



Precocious Fish

Consumers will be intrigued by the promise of fresh rainbow and speckled trout and Atlantic salmon being available daily, all year round — a promise which is being fufilled by a new fish farm at Clam Bay, Nova Scotia, where salmon and trout are being speeded to maturity at better than twice the rate of their "natural" growth.

There's no great secret about this phenomenon. Normally, the cold winter waters and, perhaps, a scarcity of food, tend to slow down the growth-rate of these game-fish. When water temperatures never go below 50°F, when nourishing food is available in adequate amounts, when the waters are unpolluted and when there are no natural enemies around, Atlantic salmon, rainbow trout and speckled trout have only one way to grow — bigger.

To obtain the prime power supply, operators of the Clam Bay fish farm rely upon an 800-KW, brushless steam-turbine driven Tamper generator from the Electrical Division of Canron Limited. The generator provides electricity for pumping water, controlling water temperatures and filtration, and power for operating the fish-food machines which churn out a specially-formulated feed for the growing fish.

It is also worth noting that Canron's Plastic Pipe Division supplied 20,000 feet of 4-inch perforated PVC pipe for this project.

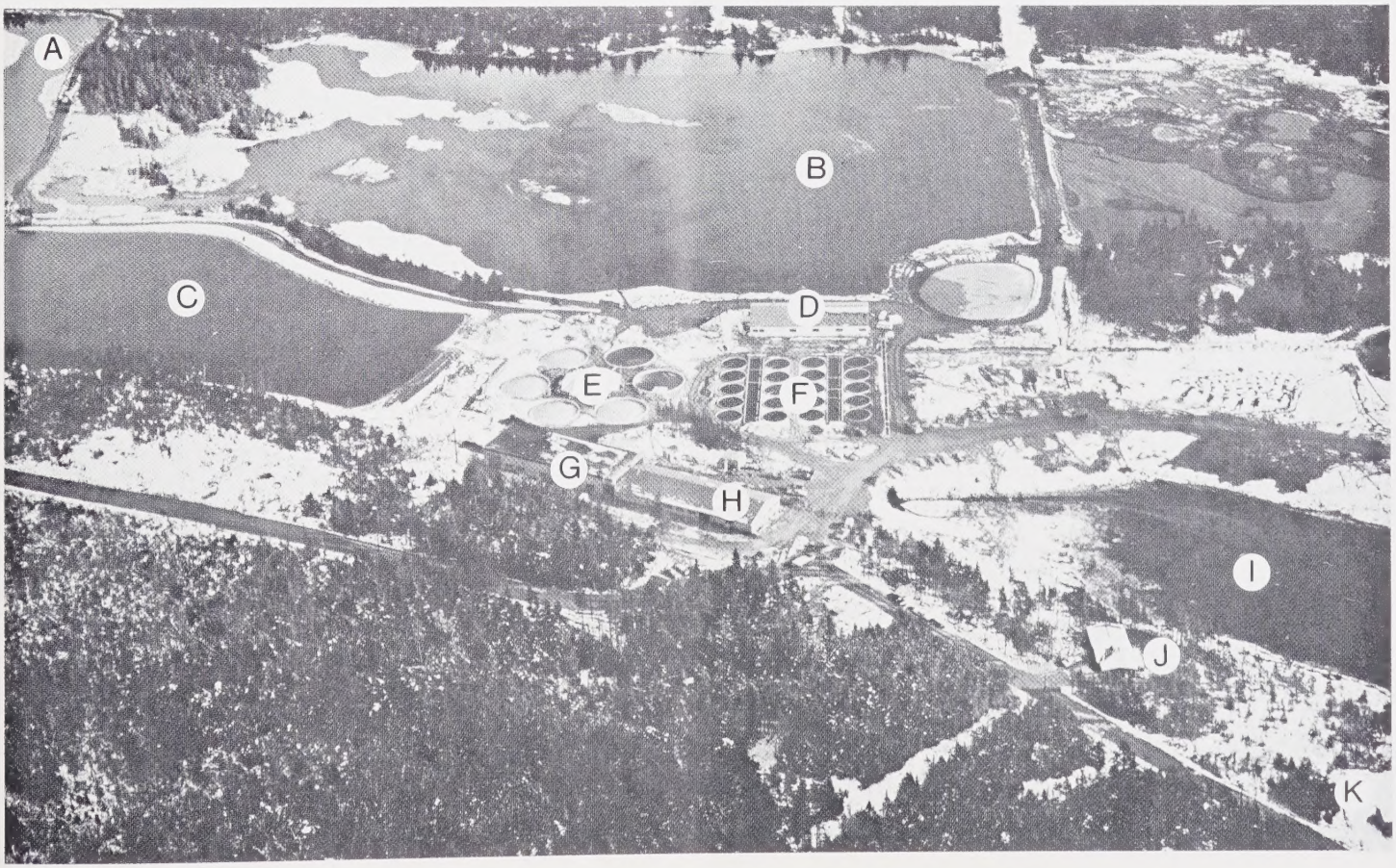
Officials of this unique farm, which is operated by Sea Pool Fisheries Limited, a division of Premium Iron Ore Limited, point out that it takes more than temperature control and the right food to accelerate the growth of salmon and trout. Left to their own devices, salmon and trout are reluctant to grow up. It takes a salmon nearly four years to reach a market-size of 6 to 8 pounds, while rainbow and speckled trout may take 20 months to attain the half-pound market minimum.

Under the favourable conditions on the fish farm, with careful adjustment of salt-water intake into selected ponds at the right time, salmon here are ready for market in 20 months, compared with the 45 months it takes them to grow as big in their natural wanderings. In eight months on the farm, the trout are as big as 20-month old "wild" trout.

Commercial fishermen in the area are finding that the fish farm provides them with a new market; the normally unsaleable part of their catch is bought by Sea Pool to mix into the feed for the trout and salmon.

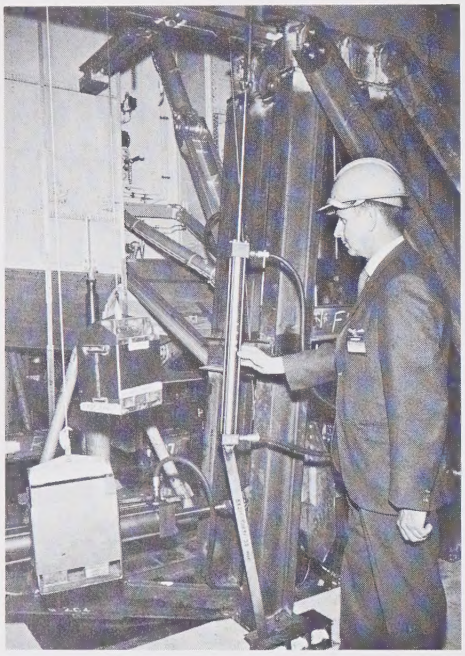
Initial sales target for Sea Pool is two million pounds of fish a year, with an ultimate annual sales target of approximately $25,000,000. Much of the "harvest" will be shipped through Halifax International Airport, which is only 40 miles from Clam Bay.

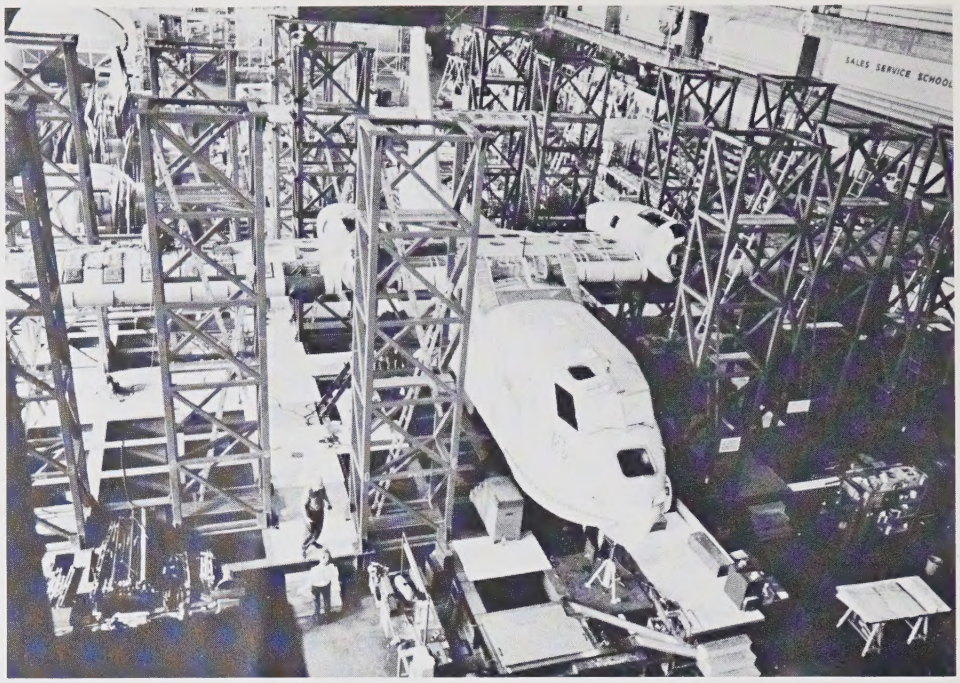
In rearing ponds warmed in cold weather by power from a Tamper generator, trout and Atlantic salmon on this Nova Scotia fish farm quickly reach market size. Here, fish grow twice as rapidly as they would in natural surroundings. Ponds marked "A" and "C" are fresh water lakes of about two and ten acres respectively. "B" is a 20-acre sea pool; "D" is the hatchery. "F" indicates the 25-foot fibreglass ponds where small fish get their start; "E", the 50-foot ponds to which the fish graduate as they get larger. "I" is another pool of some 50 acres. (When the trout and salmon are big enough, they are transferred from "ponds" to sea pools and fresh water lakes.) At left centre, "G" is a utility building; "H" is a process building. "J" and "K" are residence for the farm's biologists. This project, operated by Sea Pool Fisheries at Clam Bay, N.S., is conveniently located 40 miles from Halifax International Airport. From here, trout and salmon can be shipped fresh daily.



Hydraulic Cylinders Used to Simulate Plane Strains

Standing beside a 200-ton testing rig for aircraft at Canadair, Sales Representative Ray Finney of Railway & Power, studies the arrangements for checking aircraft landing gear. Test equipment on the rig includes 43 Parker-Hannifin hydraulic cylinders from Railway & Power.





Cradled in a 200-ton stationary test rig, a CL-215 aircraft undergoes a long series of rigid tests to check its airworthiness.

At the Canadair plant on the outskirts of Montreal, every plane intended for passenger service goes through a stiff series of tests before it can be certified.

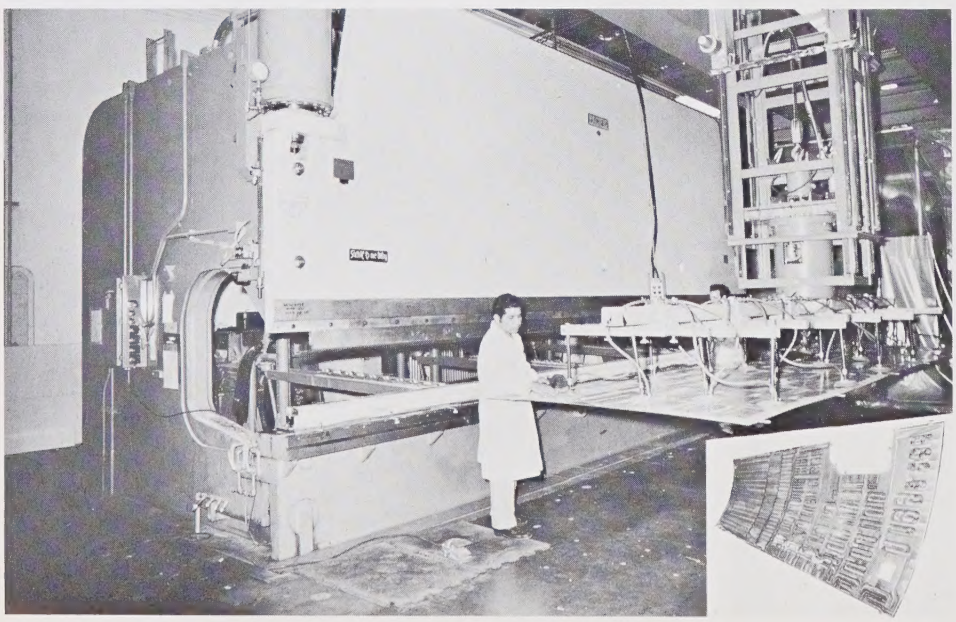
For testing, the airframe is mounted in a 200-ton web of steel while Canadair engineers apply stresses which simulate the strains encountered in actual flight.

Load-strains are applied to different parts of the aircraft by hydraulic cylinders — 43 of which are Parker-Hannifin from Canron's Railway & Power Engineering Corp., Ltd.

Altogether more than 200 strain gauges and 80 fluid-measuring devices are installed on the test plane, and a team of nine engineers records and interprets the data.

Pacific Press at Northrop

Aluminum skin sections for those huge new 360-passenger "747" planes are "bump-formed" at the Northrop plant in Torrance, California, by a 400-ton hydraulic press brake manufactured by Pacific Press & Shear Corporation, Inc., a Canron subsidiary.



For this hydraulic press brake, Northrop Corporation's Aircraft Division specified an unusual feature, a brake "throat" four feet deep. This is to allow the forming of any length skin, regardless of press brake length. Titanium sheets 44 feet long, for example, are anticipated for future supersonic transport. In the picture, a sheet of aluminum ¼" thick is being brought into place for forming. Inset, lower right, shows a skin section for a "747" plane after it has been formed.

From the 400-ton Pacific press brake to the finished airplane, everything about the "747" reads in large figures. Fully loaded, it may weigh 350 tons and it takes a 50-ton tractor to haul it around the tarmac. It can cruise at 45,000 feet (maximum) and the payload is about 120,000 pounds with 360 passengers.

Giant Gantry Crane

There's a new dockside giant dominating the scene at Vancouver's Centennial Pier — an enormous container and general cargo crane fabricated and erected by the Western Bridge Division of Canron Limited. As high as a 20-storey building and weighing over 500 tons, the crane has a capacity of 40 tons, a hoist speed of 100 feet a minute and a reach of better than 110 feet from dockside. The bridge type, diesel-electric crane, is owned by the National Harbours Board.

By 1973, maritime authorities predict, this one crane will be handling as many as 50,000 containers a year.

Based on the U.S. Starporter design, this crane is the first of three presently under construction by Canron, exclusive Canadian licensee for this equipment. A 40-ton and a 45-ton crane are being constructed for the Halifax container terminal.

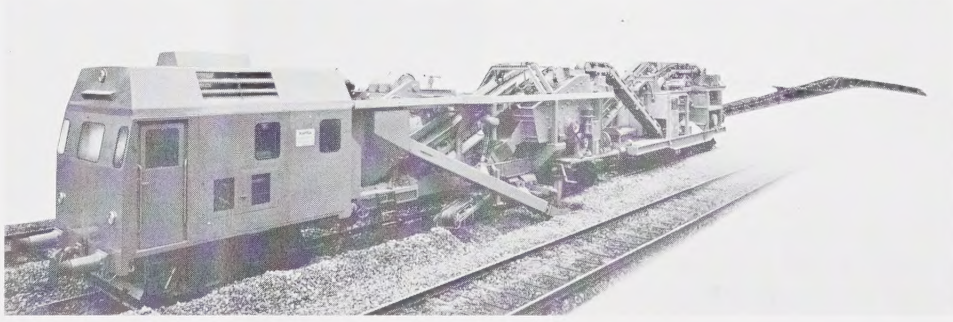
New Matisa Composite Ballast Cleaner and Crusher

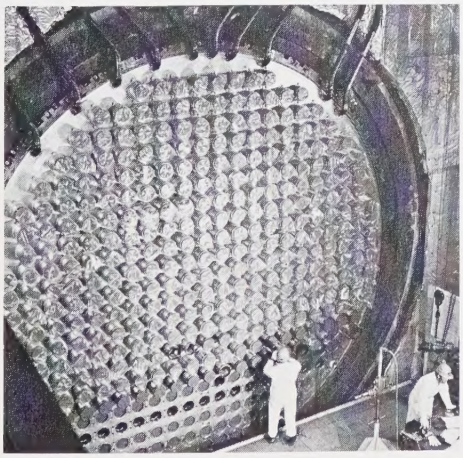
To enable Spanish Railways to overcome the dual problem of cleaning ballast and eliminating oversize ballast elements from road-beds, an entirely new ballast crusher wagon for use in conjunction with a Martisa ballast cleaner was developed by MATISA Matériel Industriel of Switzerland, a Canron subsidiary.

The crusher section, propelled by the cleaner, receives the ballast as the cleaner excavates it from the road-bed, crushes any oversized stones to the right size, then returns the ballast by conveyor to the cleaner section for screening, cleaning and return to the road-bed.

After six months' trial, Spanish Railways found that the output was 50% higher than anticipated and that the cost of ballasting by this method is four to five times cheaper than the laying of new ballast.

Officials of Spanish Railways are so pleased with the results of their first composite ballast cleaner and crusher that they have ordered three more sets of the units.





Bellows Assemblies for Nuclear Power

Solar Bellows Assemblies manufactured by Canron, Mechanical Division, are pictured during installation in one of the fuelling channels at the nuclear generating station in Pickering, Ontario. The Hydro Electric Power Commission of Ontario expects that the new power plant will have a capacity of two-million kilowatts, which will make it one of the world's largest generating stations.

Some 3,200 Bellows Assemblies will go into the four reactor units at Pickering. In carrying out specifications laid down by Atomic Energy of Canada Limited, Mechanical Division at Trois-Rivières found it necessary to establish a "clean room" for manufacturing and testing, because the surroundings must be virtually sterile.

New Tamper Work-Horse

Fast and versatile, a new heavy duty switcher, the Kal-Trac, is now in production at the Tamper Inc., West Columbia plant in South Carolina. Running on grooved tires, this machine can travel on the rails or on the highway at 40 miles an hour. The Kal-Trac switcher can pull 1,000 tons, and it can be fitted for use as a ballast equalizer, a brush cutter, or a dump truck. When it is used for switching, the unit employs air-operated couplers for remote control of coupling or uncoupling cars.

Hydraulically operated guide wheels are lowered when the Kal-Trac is on rails, and raised when the switcher is working on roads or around an industrial plant.

In the picture, the Kal-Trac switcher is shifting a "light" load; one flatcar, with a Tamper Electromatic Autoliner — a track maintenance machine — on board.

New Pipe Coupling from Canron

Can anything as unromantic as a pipe coupling be dramatic?

From contractors, engineers, architects, plumbers and plant superintendents, the answer could very well be an unqualified "yes" — once they discover the advantages of the remarkable new Straub couplings, which will shortly be available from Canron.

Canron secured exclusive manufacturing and sales rights for Canada, the United States and the Caribbean from the inventor, Immanuel Straub of Switzerland, and a plant and sales office has been established in London, Ontario.

One dramatic feature of the Straub coupling is the way it cuts costs of installation. To seal two pipes together, the Straub uses hydraulic pressure exerted by a special fluid pumped into the core of the coupling. Pipes can be joined and sealed with the Straub coupling in less than a minute.

The Straub coupling also offers the user significant technical improvements. It will accommodate considerable dimensional inaccuracy or ovality of the external pipe surface. Pipes connected with the "Straub" coupling are absolutely leak proof, and firmly but not rigidly connected.

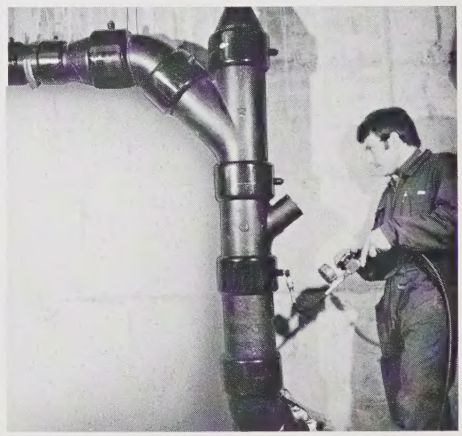
Proven in strenuous service in Europe, Straub couplings provide perfectly-sealed joints on pipes of almost any material; cast or wrought iron, steel, aluminum, stone, glass or plastic.

Leakproof, flexible and versatile, the Straub coupling seals pipeline loads of every description: acids, chemicals, air, water, foods, natural gas, oil and atomic waste. It also works perfectly on low pressure or vacuum lines.

Straub couplings are produced in sizes to fit pipes ranging from 1¼" to 12", for use up to 170 lbs/sq. in. and temperatures up to 250°F.

Canron's Coupling Department is now busily engaged in establishing a network of distributors for North America and the Caribbean for this new product.

Inside Canron's new Straub Coupling is a rubber sleeve, with a ridge, or collar, in the center. Once the pipes have been snugged up against the collar, hydraulic fluid is pumped through the valve until the pressure reaches 280 pounds to the square inch. This pressurized sleeve effectively seals the joint, and it will withstand pressures of 170 pounds to the square inch in the pipe. Installation of the Straub Coupling takes less than a minute.



CANRON LIMITED

DIVISIONS: Eastern Structural, Electrical, Foundry, Mechanical, Pipe, Plastic Pipe, Railway, Western Bridge.
SUBSIDIARIES: Canron Inc., Warren Pipe Division, U.S.A.; Extruded Plastic Products Limited; Matisa Matériel Industriel S.A., Switzerland; Northern Resins, Limited; Pacific Press & Shear Corp., U.S.A.; Railway & Power Engineering Corporation; Tamper, Inc., U.S.A.; Tamper (Australia) Pty., Ltd.; The Wabi Iron Works, Limited.

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CANRON NEWS

CANRON LIMITED 1121 PLACE VILLE MARIE, MONTREAL 113, P.Q.

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Structural Steel Rises for Commerce Court Tower

Even Paul Bunyan, the legendary logger whose bookkeeper used ink by the 40-gallon barrel, would have tipped his cap had he been able to contemplate the immensities of the Commerce Court Tower as it climbs steadily skyward from the corner of King and Bay streets in downtown Toronto. It is part of Commerce Court, a three-building development undertaken by the Canadian Imperial Bank of Commerce.

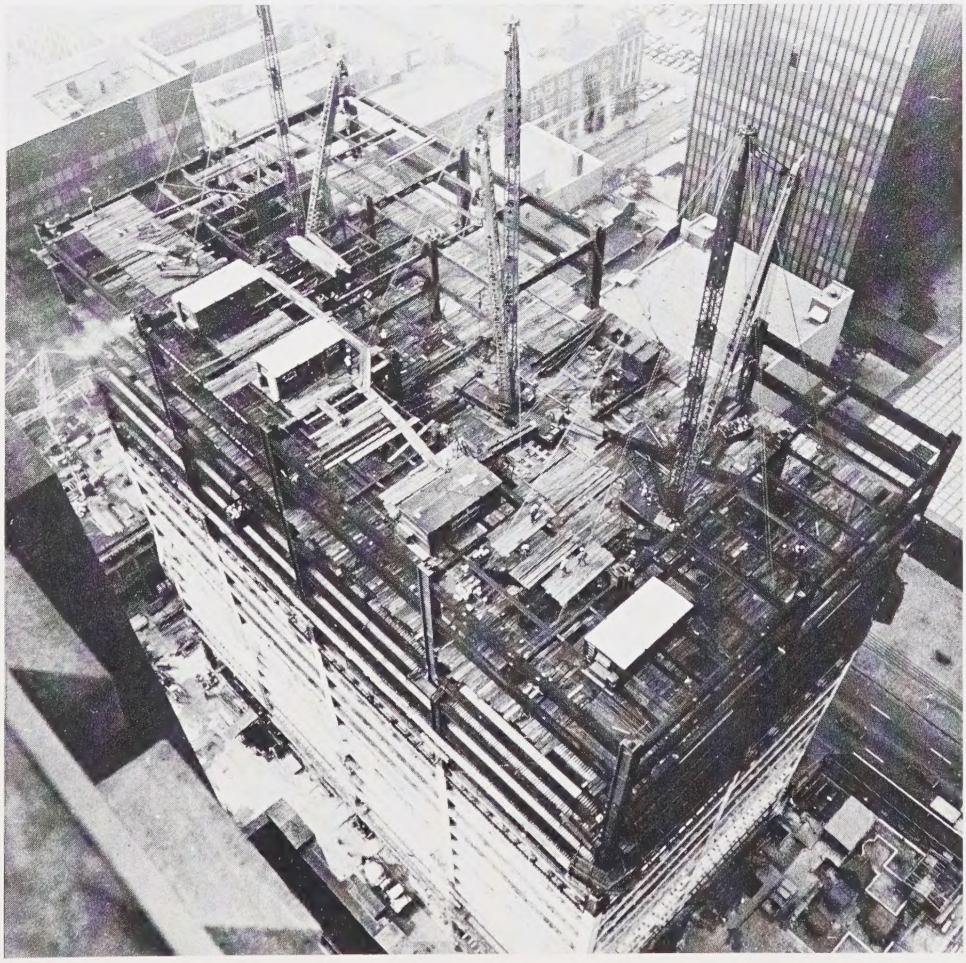
By next Spring, when the building's 30,000 tons of structural steel will be topped off, its height of 784 ft. — with 57 storeys — will make it the tallest in Canada — and by the time this part of the project is complete (expected to be May 1972), all kinds of records will be in the book.

It started as one of the largest holes ever dug in downtown Toronto. To dig the hole, the contractors went down 70 ft., hauling away some 175,000 tons of earth and another 175,000 tons of shale.

At the base of the pit, the erectors laid 24 huge steel grillages — cross-layered steel beams — measuring between 13 and 20 ft. square, with the largest weighing 100 tons. Ultimately, these will hold a burden estimated at some 162,000 dead-weight tons.

Canron and Dominion Bridge are equal partners in a joint venture to share the contract for fabrication and erection of steelwork. On site, three 35-ton guy-derricks are employed; a shuttle system of trucks hauls steel from Canron and Dominion Bridge plants in Toronto, unloading on an access ramp.

More than 11,000 structural steel shapes will have been fabricated, transported, raised, welded or bolted for the job. Heavier members are not only bolted but also welded with full butt welds. Joint venture welders use a dozen portable welding machines which permit a 60-foot reach from the welding-wire drive units. Altogether, the tower will



This was a bird's-eye view of the 17th floor of the new Commerce Court tower, as steelwork rose skyward at the rate of one storey a week. Topping-off ceremonies for the 57-storey structure are planned for the spring.

Steel erection for Toronto's tallest office building, the 784-foot-high Commerce Court Tower, began with the installation of the first of 24 foundation grillages. The picture shows a 20-ton grillage section being lowered into a rock bed 70 feet below street level.

take some 700 miles of this special wire, enough to run two lengths of it from Toronto to the far side of Montreal.

Another impressive figure is the 85 tons of steel in a single 47-foot long transfer girder that was erected in 3 sections and welded in place. This girder will help support the tower's heating, plumbing and air-conditioning equipment which is being installed between the 16th and 17th floors as well as transfer the bearing load from columns above the 18th floor, 37 feet apart, to the lower columns, which are 47 feet apart.

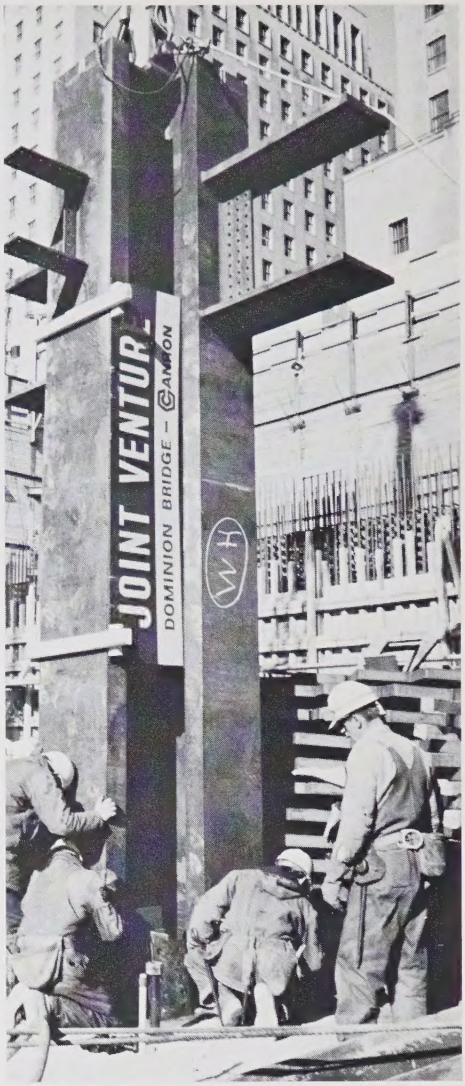
Right now, this new head office is rising at the rate of one storey a week. At that speed, steelwork is expected to have climbed beyond the bank's present 476-foot high building by early November.

Between welders, iron workers, riggers and engineers and a lot of other hard-hats, the scene may look to a layman like a badly-organized salvage job — but under the surface of things, everything is fitting neatly into place. Using what is known as the Critical Path Method, the general contractors can dovetail every phase of construction and marshal their resources at exactly the right moment.

At the heart of the finished project which will consist of the 57-storey tower, the existing 34-storey head office of the bank plus a new 5-storey building and one of 14 storeys, there will be a 2½-acre court dedicated, quite simply, to people.

More than 20,000 persons a day will use the $100 million centre which will be almost a city to itself. There will be a shopping concourse, restaurants, banking facilities, a communication centre, three floors of underground garages and a service floor.

Five double-decker elevators, unique in Canada, will serve the lower floors of the new tower. They are each two storeys high with two cabs mounted one above the other in a common frame and lifted as a unit. Passengers will enter from two lower levels. The lower car will serve even numbered floors only and the upper car the odd numbered floors. Thus each elevator will carry twice the normal number of persons and make only half as many stops. It is felt that the five tandem elevators will give the same peak performance as eight single cab elevators.



First of Commerce Court's 24 steel base columns each weighing up to 36 tons is lowered on to a foundation grillage.

Welder joins the three sections of an 85-ton transfer girder on the 17th floor of the 57-storey Commerce Court tower. The girder will help support the 16th and 17th floors housing the tower's heating, plumbing and air-conditioning equipment.

The Joint Venture is a sub-contractor to V. K. Mason Construction Ltd., Toronto, and the parent firm, Peter Kiewit Sons Co. of Omaha, Nebraska.

Architects are Page and Steele of Toronto, who collaborated with I.M. Pei and Partners of New York, consultants to the bank.

C. D. Carruthers and Wallace Consultants Ltd., Toronto, teamed with Weiskopf, Pickworth of New York as structural engineers.

Cold Mill for India

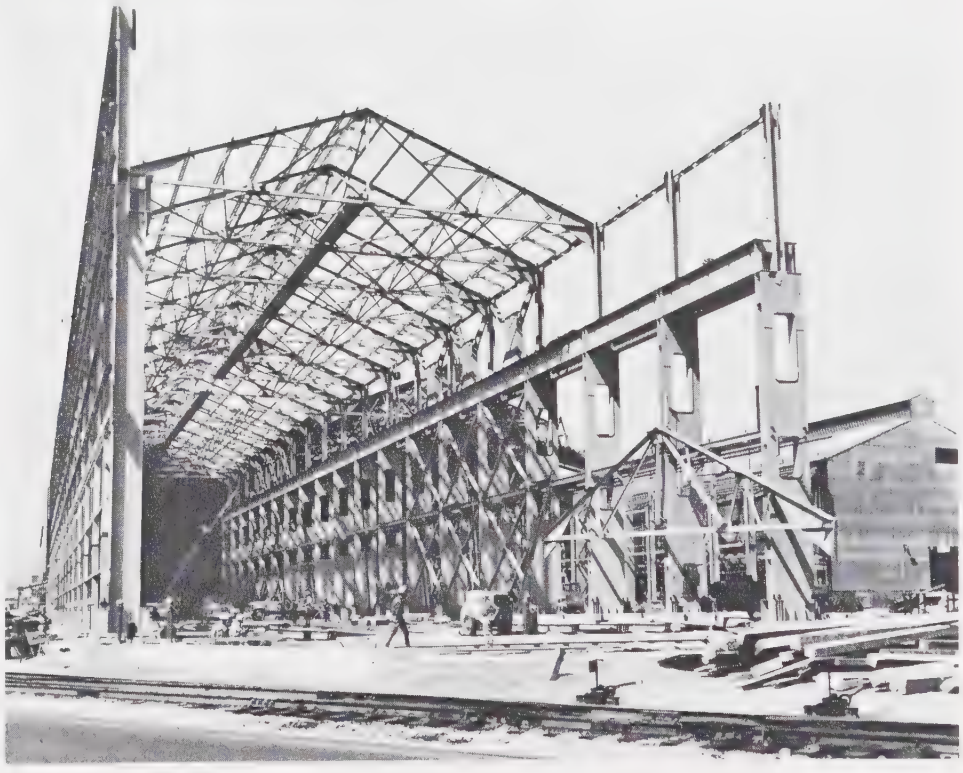
With a maximum rolling speed of 2,000 ft. a minute, a 4-HI non-reversing cold mill designed and built by Canron, Mechanical Division, will be turning out light-gauge aluminum strip for Indian Aluminum Company, a subsidiary of Aluminum Company of Canada, at a new plant in Taloja, near Bombay. It consists of a pay-off reel, a roller holdback unit, a 16″ x 42″ x 64″ mill, a tension reel, coil and spool handling equipment, and a coil preparation station along with all rolling, lubricating and hydraulic systems.

The mill can handle 10,000 lb. aluminum coils, .325″ thick at entry, and .006″ thin at delivery. It is equipped with a contour control for the roll, a strip cooling control, an automatic gauge control, and a strip thickness gauge which measures the fast moving strip.

This 4-HI Cold Rolling Mill, bound for India, from Canron's Trois-Rivières plant, and weighing about 500 tons, can turn out light gauge aluminum strip at a speed of 2,000 ft. a minute. Built-in controls cool the strip, keep its contour level and gauge its thickness. The contract, for a subsidiary of Aluminum Company of Canada, was valued at $1.3 million.

DOFASCO Melt Shop Extension

In Hamilton, Ontario, where Dominion Steel and Foundries, Limited (DOFASCO) is busy with an overall expansion programme, Canron erected 2,500 tons of steel for the storage aisle (illustrated) and the pour aisle for the melt shop extension. While work was in progress, Canron was awarded a second contract for 1,000 tons of steel for the main aisle. The first two buildings, with an 81 ft. clear span, are both 500 ft. long; the main aisle is 81 ft. by 200 ft. The total value of the contract is approximately $2 million.



Electrical Apparatus Service Expanded

Canron, Electrical Division, has greatly changed its approach to the many aspects of customer service. Until this year, warranty and general product service had been handled by the Service Department at the Lachine plant, where this work was coordinated on a product line basis with the manufacture of new equipment and also by the Toronto Service Centre which is almost exclusively occupied with the needs of the Ontario market.

A new service centre has been established in Montreal operating separately from the factory and presenting a "total service" function for servicing not only "Tamper" products, but also all other makes of electrical apparatus and electronic equipment.

Besides the Toronto and Montreal Service Centres, there are now more than sixty authorized repair depots across Canada.

C. A. Shupe, Manager of Installation and Product Service, and his staff at the Lachine plant maintain control of all service activities, coordinate the supply of material required by all locations, and provide the necessary liaison with other divisional departments.

The service centres are managed by Doug Bullock in Montreal and Hal Crompton in Toronto and they combine over six decades of experience for the benefit of Canron customers.

Emphasis of the entire service operation is on "after the sale" customer satisfaction. This starts with proper installation, continues with effective warranty service, and follows through by providing parts or repairs promptly. The service function has also been organized to mesh closely with quality control and is thus providing valuable information and feedback to both the Production and Engineering Departments.

The service centres are well equipped to repair and rewind the full range of Electrical Division products. Dynamic balancing, testing, varnishing and baking facilities are included, and the machine shop staff repairs and reworks vertical pump motors, rotary converters, lifting magnets and other large and complicated electrical units. Electronic specialists look after start-up and maintenance of electronic variable-speed drive units.

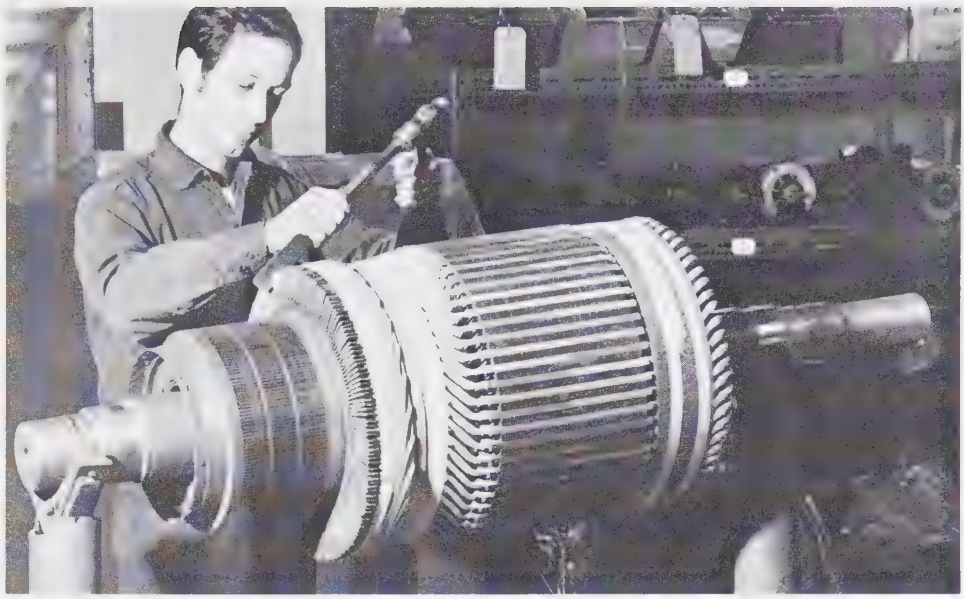
For the new service centre, ready access to the main factory makes it possible to dynamically balance large rotary elements weighing up to 22,000 lbs. and measuring 11 feet in diameter by 14 feet long. The factory's 3,000 kw motor-alternator set and 5,000 h.p. dynamometer are also used. The Montreal Service Centre operates its own trucking service and equipment is transported quickly and efficiently.

Proximity to the factory also means that all the engineering and manufacturing know-how is regarded as an integral part of the service function.

Demands for service, it is clear, will continue to rise, and Canron is

Strategically located, the new service centre is easily accessible by all major expressways in Montreal.

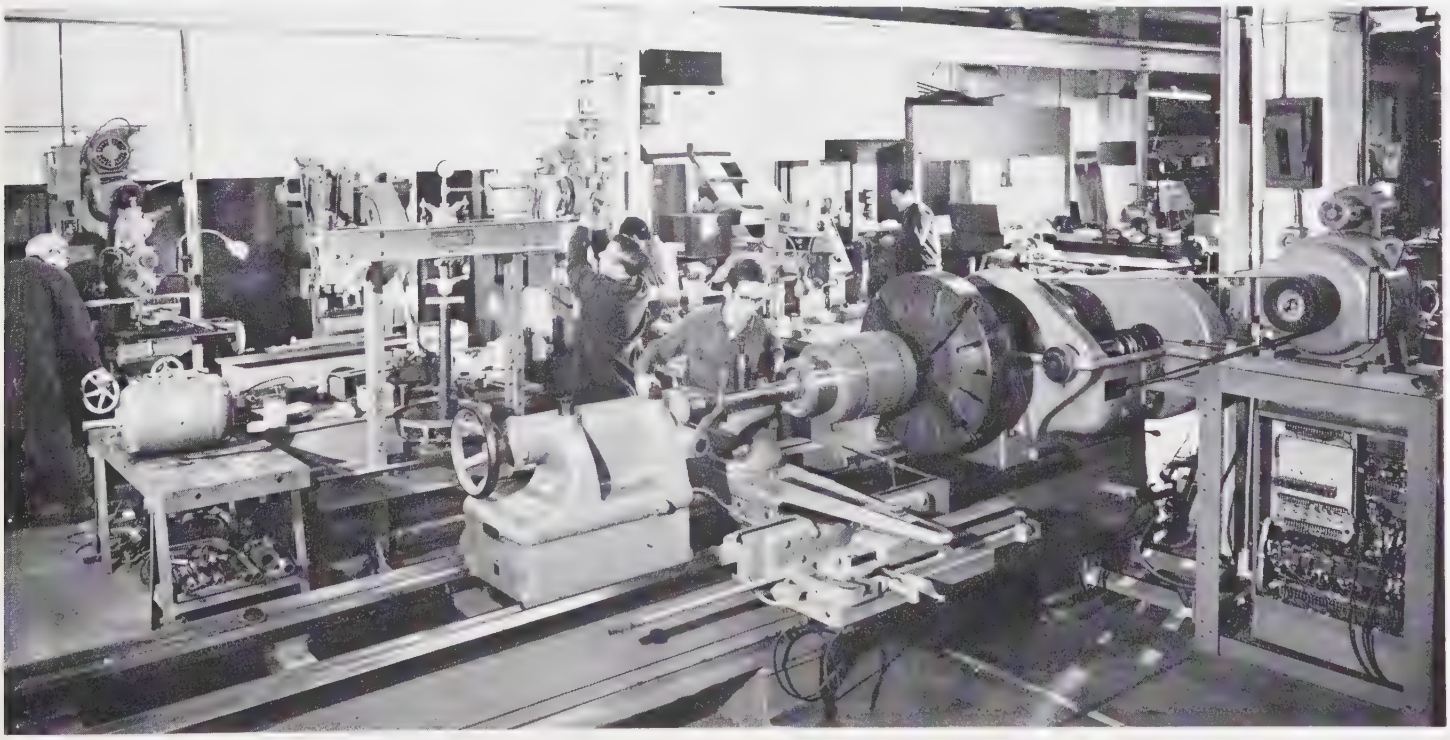
geared to meet them. One factor will be the Electrical Division's new plant in Napanee, Ontario, which is turning out more than a thousand fractional h.p. motors a day. Extremely complex rotating electrical equipment requiring highly qualified start-up and service attention is being installed from coast to coast in pulp and paper mills, mines, industrial and atomic power plants, refineries and for other users. Canron also exports electrical equipment which needs service and warranty coverage.



A large rewound D.C. motor armature for a plastics extruder installation in the final stages of connection by Richard Giroux.

With 29 years experience, Jack Robinson is well equipped to handle the special vertical pump motor shown in the foreground.

The electronic drive on the lathe in the foreground ensures the wide speed range and precise speed control required for banding commutators, and a wide variety of precision work. This drive was designed and built by Carl Stormann, the service centre's electronic specialist. In the rear is a high accuracy dynamic balancing machine for motor rotors, a milling machine, and press equipment.

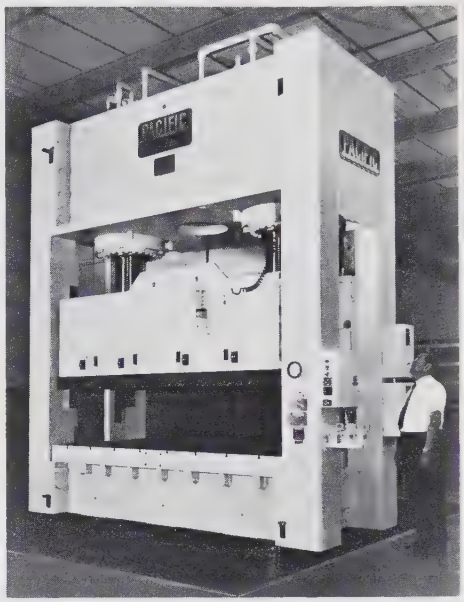


Straightside Provides Precision and Flexibility

When Atlantic Sheet Metal Products, Inc., of Springfield, N.J., needed a press with a wide range of capabilities, they found what they wanted in a 750-ton Pacific Straightside Press made by Pacific Press and Shear Corporation, Inc., a Canron subsidiary.

Atlantic was looking for a press with six operator stations, so that six operations could be performed at once. The Straightside performs a wide variety of blanking, forming, perforating, punching, notching, stamping, trimming, deep drawing operations — and set-up times are minimum. The press is equipped with a removable bolster, 60" by 120", and 200-ton capacity die cushions. Press tonnage may be controlled to supply only the force needed, from maximum to within 20 per cent of capacity. Stroke is easily adjusted from 36" to ¼", with full power throughout.

Steel, aluminum, stainless and copper are among the metals formed by Atlantic — and the character of Atlantic's operations compelled the company to demand top performance from their fabricating equipment; Atlantic produces component parts to a wide range of specifications for such exacting clients as IBM, Burroughs, Eastman Kodak, and Xerox.



Polish Railways Buy Matisa Inspection Car

Polish State Railways has booked with Matisa Matériel Industriel S.A. of Crissier, Switzerland - - a Canron subsidiary - - an order for a high-speed track recording coach, specially equipped by Matisa.

Drawn by a normal passenger train, the coach scans track conditions minutely and gathers detailed information through its recording system. Data from the recorder is processed by a numerical analyser, which is also set up in the car. Every quarter mile, the analyser prints out a number which represents the numerical assessment of the state of each section of the track.

Danger points on the rail, if encountered, get a spray of marking paint from a device on the coach.

Afterwards, the analysis is processed by computer to form the basis of the track maintenance programme. This way, the Polish State Railways plans to upgrade its main railway lines to allow train speeds of 75 m.p.h.

High-speed track recording coach developed by Matisa Matériel Industriel S.A. measures the geometric state of railway track.

Numerical analyser, developed by Matisa Matériel Industriel S.A. of Switzerland, works with recording system to yield detailed analysis of railway track conditions as the basis for computer-programmed maintenance.

Peel County Feedermain

About 2 miles of 5 ft. diameter Hyprescon concrete pipe manufactured by Canron Limited, Pipe Division, at the Rexdale, Ontario, plant, is going underground as a feedermain for the Ontario Water Resources Commission's huge water distribution project in South Peel County.

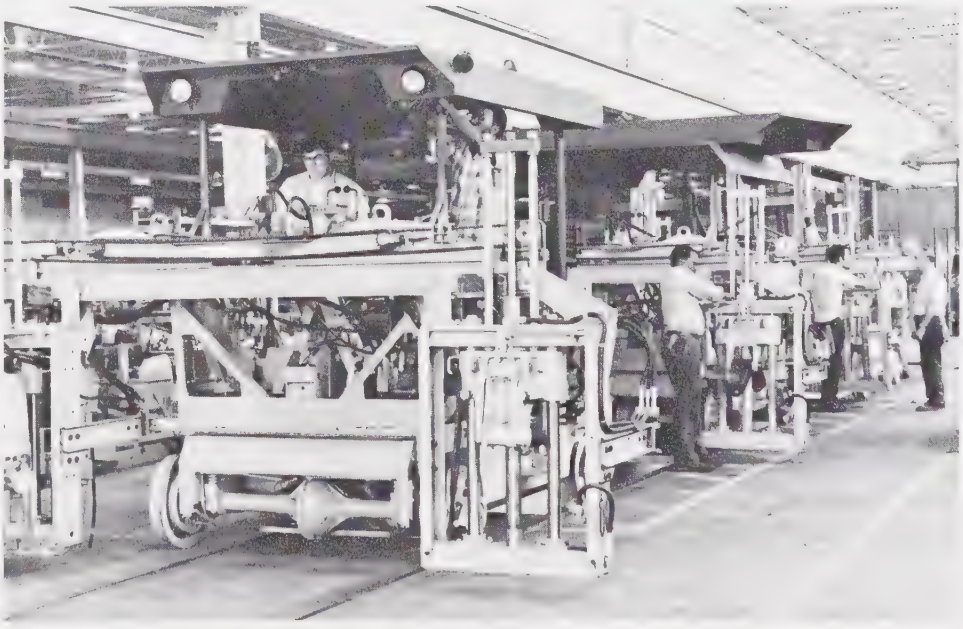
This feedermain, travelling in a northerly direction up to the Queensway, is part of the system which will feed water reservoirs at Silverthorne, Hanlan and Brampton for further distribution.

Consulting engineers for this project, which commenced in April 1970, are Gore & Storrie Limited and the contractor is Sam Cosentino Limited.

New Tamper Brush-Cutter

This heavy-duty machine, with its 4-wheel drive, can travel 40 m.p.h. by rail or by road. Twin cutting heads, on hydraulic booms, swing out 25 feet from the centerline on each side. The heads are 7 feet in diameter and can cut 12-inch trees. The operator can contour the brush-cut as needed, dipping the heads into deep gulleys or raising them for high banks.

Switch Tampers for Chile



Switch Tampers roll along the assembly line of the Tamper, Inc. plant in Columbia, South Carolina. These machines, along with Autojack Electromatic Tampers, will be used in a modernization programme for Chilean Railways. The present order to Tamper, for more than $450,000, was made possible through a loan from the Export-Import Bank. In Chile, a Spanish-speaking Tamper representative will supervise installation and start-up of equipment, instruct the operating and maintenance staffs, and advise the Railway on the most efficient application of Tamper machines.

Golden Eagle Wharf

Time and tide indeed wait for no man — but at the right time, and with all the right skills, you can get the ebb-tide working for you.

At Levis, across the St.Lawrence from Quebec City, Canron engineers picked the right moment — and the tide served them well.

The problem was to swing 1000 tons of pipe support bridges and connecting walkways into position so that they formed a loading wharf, which along with a causeway would run 1600 feet out from the shore of the St. Lawrence River.

The first difficult steps, however, had already been taken. At intervals from shore, solidly-built caissons, 75 ft. in diameter, had been erected to serve as bases for the steelwork.

On shore, Canron crews pre-assembled the fabricated steel to form four bridge sections, 200 ft. long and 19 ft. deep by 19 ft. wide, and four walkways — smaller and lighter, but as much as 300 ft. long. Once the sections were ready, they were floated out on barges at high tide, manoeuvered into position, and simply left to bridge the caissons as the tide dropped, lowered the barges, and left the steelwork sections high and dry.

On paper, it all sounds easy — but successful execution of the job involved a great deal of skill, many precise calculations, and a lot of plain hard work. Each bridge section weighed 120 tons, and the walkways, although lighter, were awkward to handle.

Besides the bridges and walkways, there were 200 tons of steel framing built into the wharf as pipeline supports.

When finished, the wharf will serve the Golden Eagle Oil's Quebec City Refinery. Tankers docked in the river will discharge oil by way of the supported pipes to nearby storage tanks.

▲ *Pre-assembled bridge, resting on barge, is lowered into final position as tide recedes.*

Four bridges and walkways erected between 75-ft. diameter cells, form loading wharf for Golden Eagle Oil Refinery at Levis, Quebec. ▼

CANRON LIMITED

DIVISIONS: Eastern Structural, Electrical, Foundry, Mechanical, Pipe, Plastic Pipe, Railway, Western Bridge.
SUBSIDIARIES: Canron Inc., Warren Pipe Division, U.S.A.; Extruded Plastic Products Limited; Matisa Matériel Industriel S.A., Switzerland; Northern Resins, Limited; Pacific Press & Shear Corp., U.S.A.; Railway & Power Engineering Corporation; Tamper, Inc., U.S.A.; Tamper (Australia) Pty., Ltd.; The Wabi Iron Works, Limited.

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DECEMBER 1970 — VOL. 3, NO. 3

Expansion at Toronto International Airport

Airport congestion has been clogging every major airport in the world, and Toronto International Airport is no exception. In the next few years, $63 million will have been poured into a second terminal and improvement to existing facilities — but even this may not be enough to keep up with the boom in passenger travel.

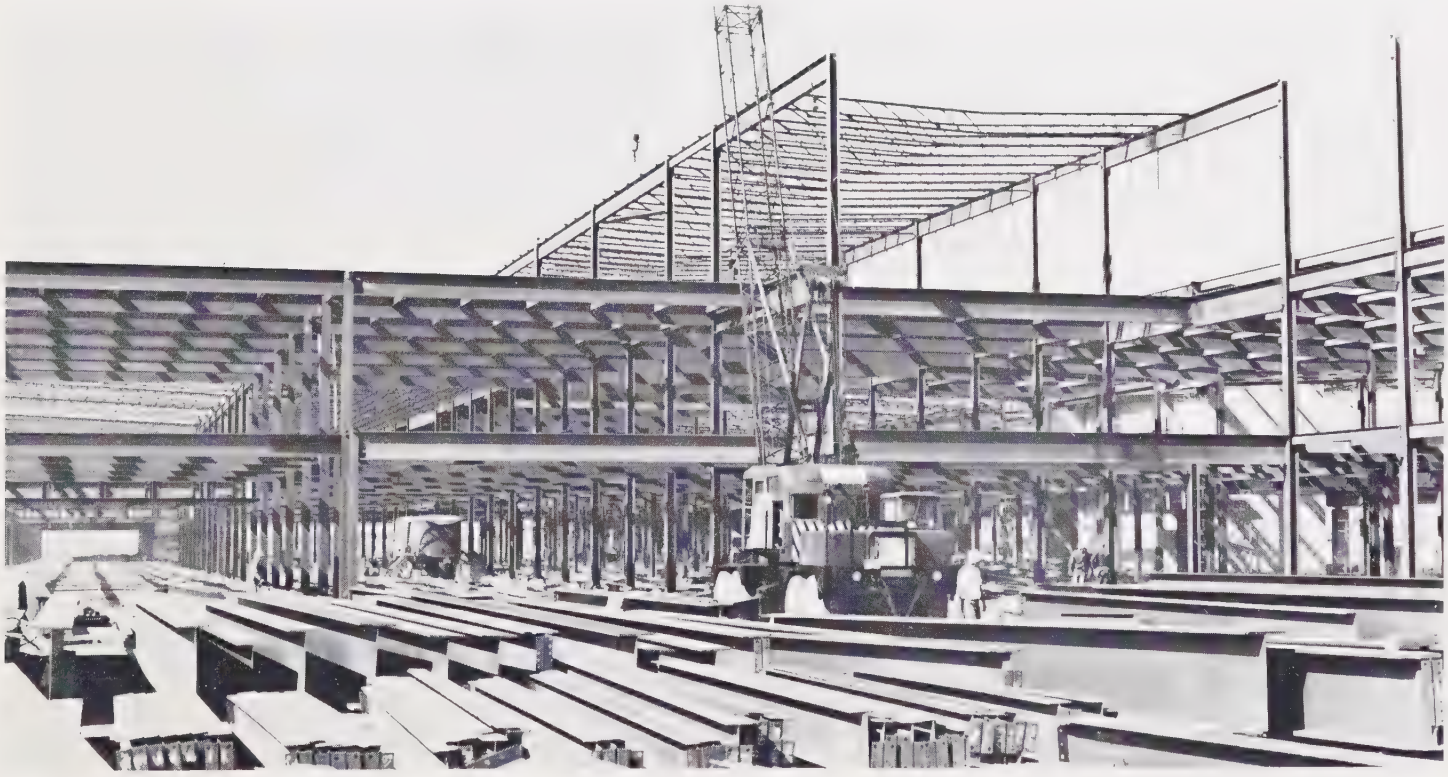
One factor in overcrowding, obviously, is the remarkable size of the new airliners — 350 passengers or more to a plane. Another is the speed with which the "jumbos" travel; a B-747 may travel to Paris overnight, say, and be back almost before the echo of its departure has faded. (And as humorist Art Buchwald suggests, it isn't the passengers who are saturating the waiting lounges — it's the relatives, friends, sightseers, and security people.)

Right now, to relieve the crowding at Toronto's International Airport, a spacious new Terminal No. 2 is under way. Its first phase is a 1000-ft. structure, 215 ft. wide, with steelwork fabricated and erected by Canron's Eastern Structural Division. Canron has completed its share of the first phase, and the rest of the work should be finished by mid-1971.

Second and third phases will add some 2000 ft. to the first building, so that eventually the new terminal will provide 18 new gates, each capable of handling a 350-passenger jet.

Completion is scheduled for March, 1972.

Stacks of steel are neatly lined up beside the framework for Terminal Building No. 2 at Toronto International Airport. The Terminal will be 215 ft. wide by 1,000 ft. long, mostly two or three storeys high, and it is designed for eventual expansion to three times the first size.



Altogether, Toronto International Airport will handle 9.75 million passengers a year, compared with its present volume of some 5.4 million passengers, who are overtaxing a capacity designed for some 3.2 million travellers.

In addition to the construction of Terminal No. 2, a number of projects are being carried out at the present Terminal to boost the passenger handling capabilities, operational efficiency and public space.

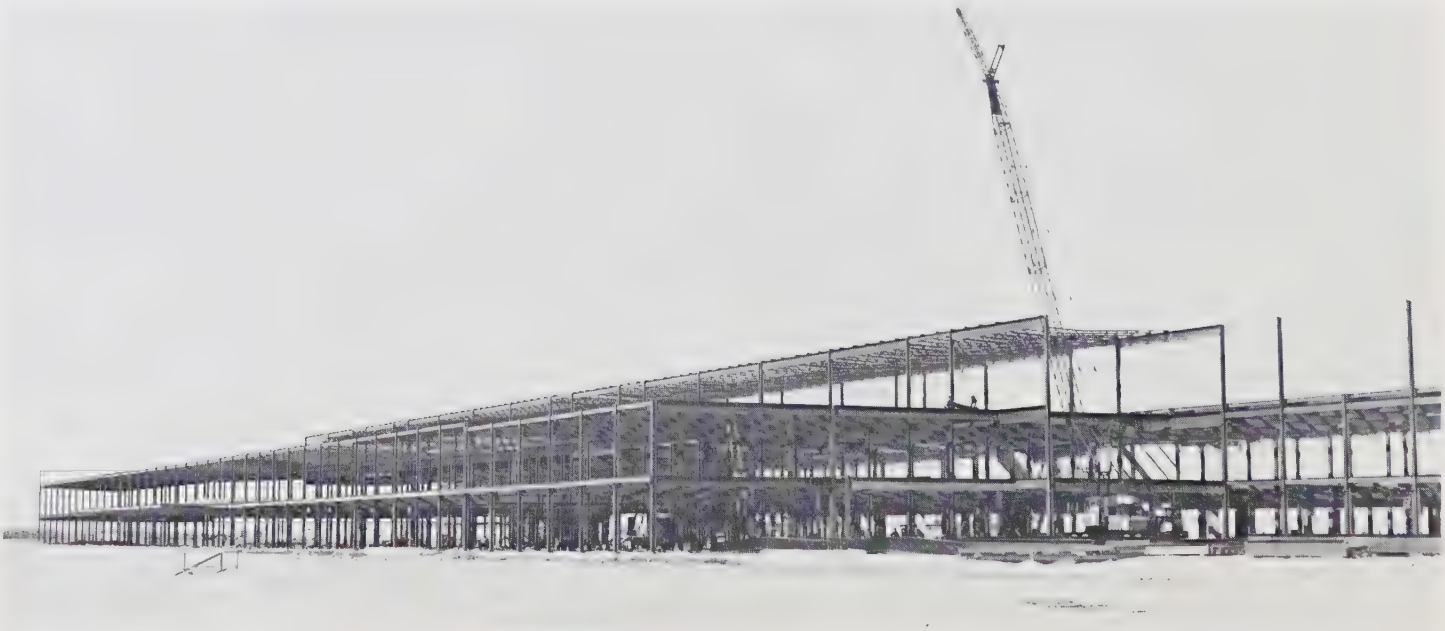
When the second phase of the new terminal is finished, it will provide a 600-ft. underground moving sidewalk to connect the new and the old terminals. Passenger movement will be based on the "liner concept"; that is, a passenger outbound will go from his initial waiting area directly through ticketing, customs, and health checks — right into the holding room servicing his plane. In reverse, the same system will apply to inbound passengers.

Aircraft parking ramps, automobile parking lots and other facilities will bring the cost of the new terminal to $53 million, while extension and strengthening of runways will add another $10 million.

Even with tripling the present capacity of the airport, the planners recognize that the current expansion programme may be inadequate. The Federal Department of Transport, together with the Ontario Provincial Government, is searching for a suitable location for a second major international airport in the Toronto area. So far, no announcement has been made.

Artist's view of the expanded Toronto International Airport shows the first phase (center foreground, in white) for which Canron, Eastern Structural Division fabricated and erected steelwork. The next phase, on which work is expected to start in 1971, will be the part shown at left, with a tunnel as indicated by the dotted line joining it to the present circular air Terminal No. 1. The third phase will be an extension on the northeast end of the building indicated by the fine dotted area at right in the sketch. The planned extension of the runway on the northwest side of the airport is indicated at the top of the sketch.

KEEPING UP WITH THE JUMBOS — At Toronto, as elsewhere, the age of the jumbo jets is confronting airport authorities with an ever-mounting strain upon their facilities. Part of the answer here is Terminal Building No. 2, designed for eventual expansion to a length of 3000 ft. The first stage will be 1000 ft., 215 ft. wide, mostly two storeys high but with a superstructure for mechanical and electrical equipment. Canron, Eastern Structural Division, was awarded contracts for the supply and erection of steelwork, valued at approximately $1 million.



Montreal's Incinerator Gets Rid of Pollutants

Montreal's new $15 million incinerator is described by an engineering journal as "the most advanced refuse-disposal plant in North America, from the standpoint of capacity, automation, steam production, potential revenue and environmental controls".

Using garbage as fuel, at the rate of 1200 tons a day, the plant will also market the steam from its four huge boilers for heating purposes. Two municipal yards and a new junior high school were the plant's first customers.

Virtually pollution-free, the incinerator operates 24 hours a day, seven days a week. For dependable long-term operation, 22 "Tamper" motors manufactured by Canron's Electrical Division have been incorporated in the design. Two rows of "Tamper" motors, ranging from 10 to 25 h.p., drive pumps which feed hydraulic fluid to the servo-motors which operate three huge grates. Four 200 h.p. "Tamper" motors drive induced-draft fans, while four others drive forced-draft fans.

To prevent emission of air-pollutants through the plant's pair of 258-ft. high chimneys, electrostatic precipitators remove 95% or more of the solids from waste gases and drop the residues onto screens for sorting and disposal.

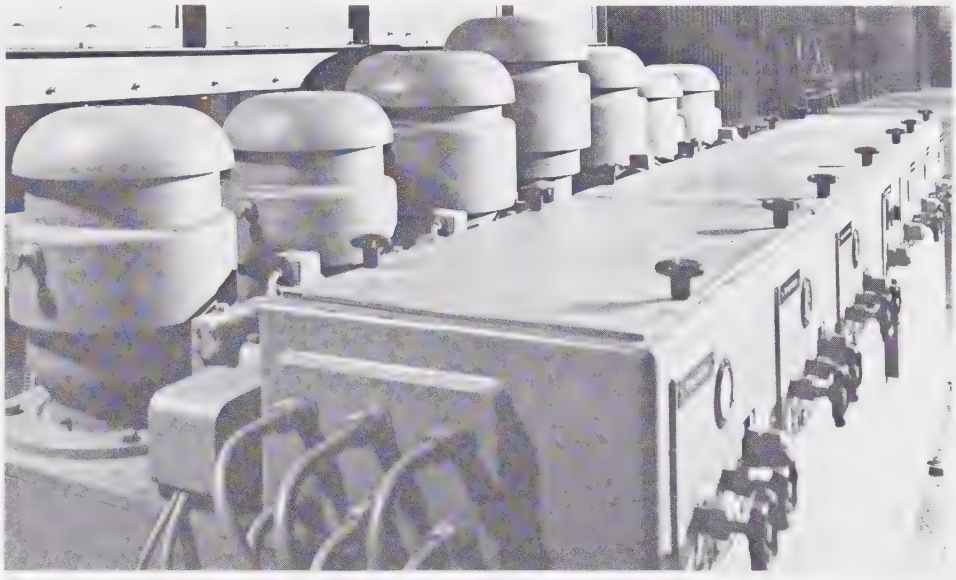
Control of dust, odours and noise starts right at the beginning when trucks unload garbage into a 2400-ton completely enclosed pit. Air controls keep dust and odours from seeping out and the furnaces are sealed to prevent leaks at that stage. Temperature controls on combustion not only prevent excessive smells, but also the fusing of fly-ash in suspension.

Over a weekend, 2400 tons of refuse in the storage pit is enough to fire the furnaces and keep the four boilers going, but, in emergencies, standby oil burners can keep steam up.

Visiting engineers find the operating characteristics "impressive". The plant has a 99.7% burn-out rate; steam production rated at 1.4 to 3.0 tons per ton of refuse (depending on the heat-values of the refuse and the feed-rate), dust emission of no more than 0.17 lb. per 1000 lbs. of gas, and uninterrupted operation of each furnace and boiler for a minimum of 7700 hours.

Despite its great capacity, this plant can handle the refuse from only 750,000 Montrealers. Until a second plant is built along the same lines, the city will depend on its older incinerators to dispose of much of the city's garbage. Meanwhile, the new plant is a show-piece for advanced pollution control.

BATTERY OF "TAMPER" MOTORS, looking like mushroom-capped robots, is lined up for duty at Montreal's new $15 million incinerator plant. These motors, manufactured by Canron's Electrical Division, are from 10 to 25 h.p., and work all week long, around the clock, to feed hydraulic fluid to servo-motors. Eight other 200-h.p. Tamper motors are used to drive induced- and forced-draft fans.



TURNING GARBAGE INTO POWER — Montreal's new incinerator uses refuse as fuel, produces steam for neighborhood consumption. Air pollution has been reduced to minimum by electronic precipitators which remove 95% or more of the solids from the waste gases.

Gantry Cranes for New Halifax Container Terminal

The first of two giant gantry cranes, built by Canron for the new $15 million container terminal at Halifax, is now in action. This crane can lift 40 tons, the other, to be installed at the beginning of 1971, can lift 45 tons; between them they can load or unload 1400 containers a day.

The expanded port facilities at Halifax, operated by Halterm Ltd., cover 56 acres, with 1800 ft. of dock to berth two container ships or two roll-on, roll-off ships. In its first year of operation the terminal is expected to handle some 50,000 containers and by 1975 the annual traffic may amount to 300,000 containers.

Halterm is owned equally by Canadian National Railways, Halifax International Containers Ltd. (Halicon) and Clarke Traffic Services Ltd. of Montreal. Halicon is 80% sponsored by the Nova Scotia government and 20% by the City of Halifax.

As the "container age" gathers momentum, Halifax port authorities look forward to a period of surging growth. More than two years ago, Halifax launched a vigorous campaign to obtain a healthy share of the fast growing container trade, and opened the bidding with their multi-million dollar terminal.

The planners included the docking of ships, loading and unloading containers or roll-on, roll-off cargos, packing, unpacking, documentation, storage of containers, or direct forwarding and security.

Since one prime advantage of a container port is its ability to offer fast turn-around times for container ships, the port counts heavily upon the speed and capacities of its gantry cranes. The heavier of these two Canron cranes, with the 45-ton lift, has an outreach of 133 ft. and a backreach of 60 ft. The 40-ton gantry has an outreach of 113 ft. and a backreach of 57 ft.; hoist speeds are over 100 ft. a minute.

When the gantries unload a ship, the containers may be taken to storage and classification areas, or loaded directly onto Canadian National Railways flatcars. In the storage area, 3650 containers, stacked two-high, are protected by stout fences and round-the-clock security guards. Deliveries from the Halifax container port to Montreal take only 25 hours; to Toronto, 32 hours.

On the other side of the continent, another 40-ton gantry crane fabricated and erected by Canron's Western Bridge Division, went into service some months ago. As high as a 20-storey building, the gantries handle not only containers but also general cargo; they are based on the U.S. Starporter design which is licensed in Canada exclusively to Canron.

The 40-ton gantry crane, built by Canron, in operation at the Halifax container terminal.

Ten Miles of Water Pipe Installed in 33 Days

Manufacturers use enormous quantities of water in turning out their products, and water-supplies became critical for the Bombardier Ski-Doo plant at Valcourt, Quebec, when the company decided to step up production. Without one million additional gallons of water a day, the projected increase was out of the question.

For the town of Valcourt, the handiest source for the extra million gallons was Bowker Lake, some fifteen miles west of Sherbrooke. Tapping the lake, however, first required the approval of the Quebec Water Board (La Régie des Eaux du Québec). Once this had been obtained, three different contractors were put on the job of installing 52,000 feet of Canron cast iron pipe from the lake to Valcourt.

Time, by now, was precious. As the order for nearly ten miles of 18", 16" and 14" pipe came in to Canron's Pipe Division plant at Trois-Rivières, production and deliveries went into high gear. The contractors, with their job made easier by Canron's steady schedules, rushed the project to a finish in just 33 days.

Consulting engineers for the project were St. Pierre, Bertrand, Charron and Savoie of Victoriaville, Quebec, and the contractors were Couillard Construction, La Société Lavoie Inc., and Normandin Construction.

52,000 feet of cast iron pipe from Canron's Pipe Division went into a new water transmission line from Bowker Lake to the town of Valcourt in Quebec's Eastern Townships. Three contractors finished the installation in just 33 days. The line uses 18", 16" and 14" pipe to deliver a million gallons of water a day.

Tandem Press Brakes at Patterson Steel

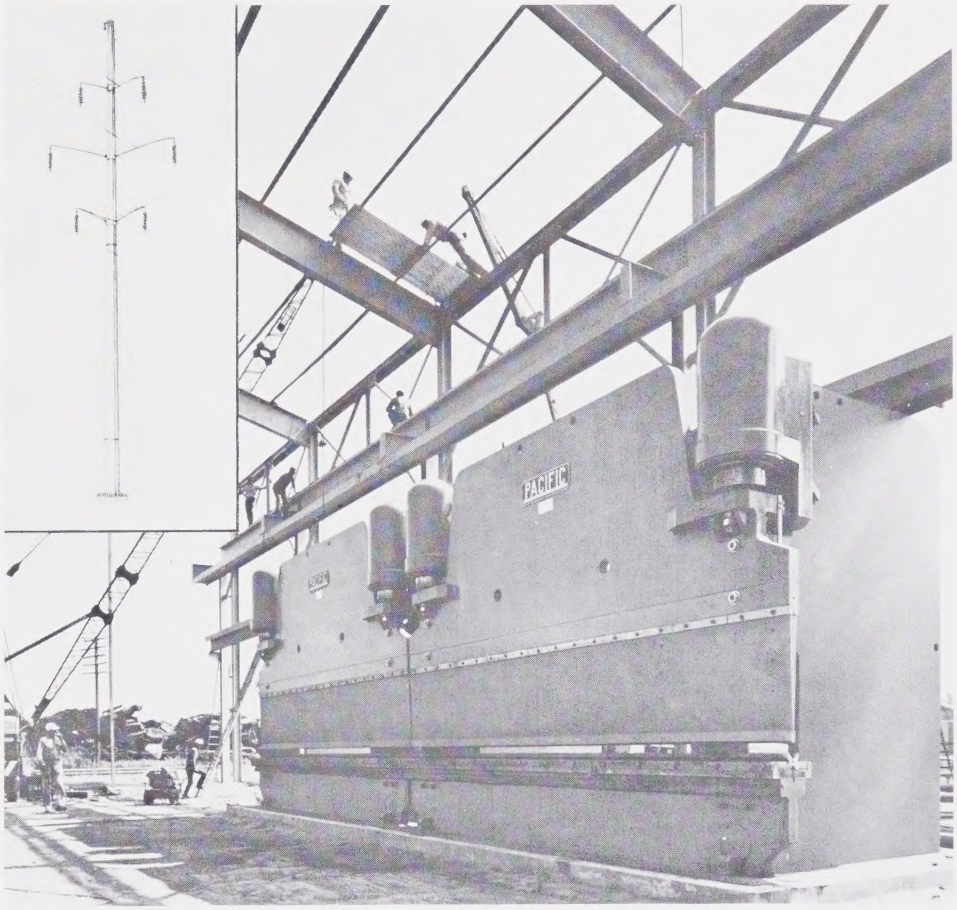
When Patterson Steel Company of Tulsa, Oklahoma, bought two 750-ton, 20-ft. "Pacific" hydraulic press brakes to go into a new plant, their engineers and architects came up with a novel idea: Why not install the press brakes first — and then build the plant around them?

That is exactly the way things were done. But for a start, it took seven truck-trailers to haul the two 750-ton press brakes to Tulsa from Mt. Carmel, Illinois, where Pacific Press and Shear Corp. manufactures them. On the site of the new plant, the shipment was unloaded onto a base that had been prepared to hold the press brakes, and once the huge machines had been set up and mounted into position, Patterson Steel went ahead with the rest of the 9600 sq. ft. building.

Pacific Press and Shear Corp. — a Canron subsidiary with headquarters in Oakland, Calif. — is by no means a stranger to Patterson Steel, for Patterson also has two 300-ton 14- and 12-ft. "Pacific" hydraulic press brakes operating in tandem, a single 300-ton, 14-ft. press brake, and a half-inch, 20-ft. hydraulic shear for general work.

For the two new Pacific press brakes, Patterson Steel has an interesting end-product in mind: tall, slender and handsome hydro poles to replace the straddle-legged latticework monsters which seem to stalk across so much of the North American landscape. Patterson Steel, a 50-year-old firm, has been providing utility poles in the traditional design for the past seven years, but is now concentrating on the low-profile tubular type.

To form the new poles, which may be 160 ft. high, Patterson will use the new press brakes in tandem. The machines bend high-strength steel, up to ⅝" thick, over a 40-ft. length. Rams of both machines are connected electrically and hydraulically for synchronization within 1/1000" during the entire stroke. At choice, the machines can be operated separately; for instance, one press could be punching while the other was forming. Later, a third press brake may be added to extend the capacity. There are three main economic advantages with the tandem rig, said a Patterson executive. For one, the long length saves welding. For another, it reduces shop assembly time; and for a third, it relieves engineers from intricate design.

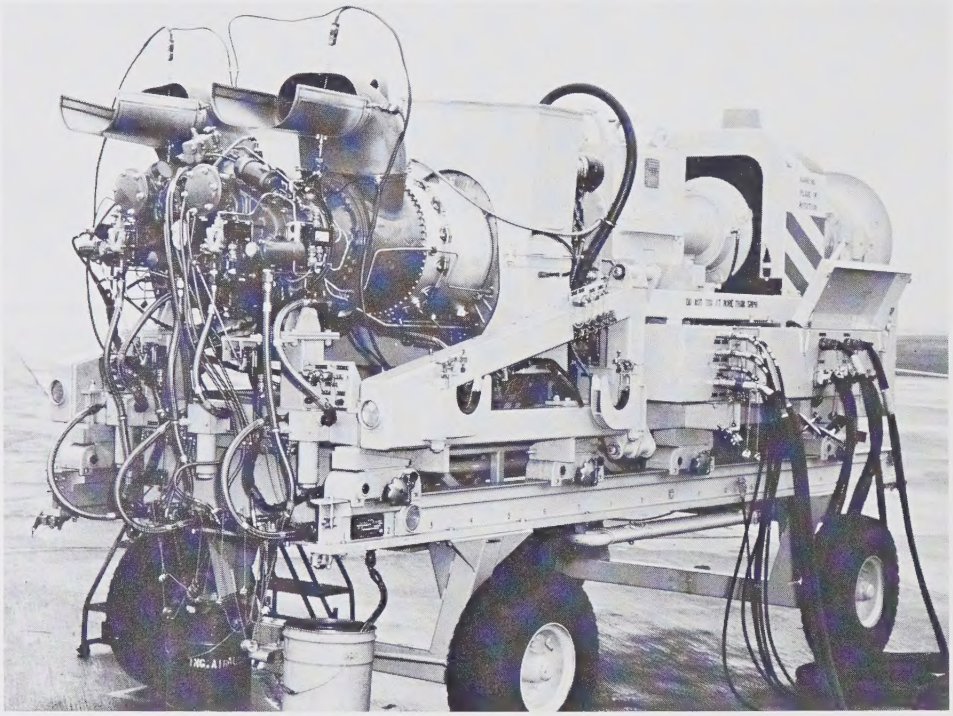


REVERSE ORDER — To install two 750-ton, 14-ft. "Pacific" hydraulic press brakes in tandem for a new plant, the Patterson Steel Company of Tulsa, Oklahoma, found that it was simpler to set up the press brakes first, on a prepared base, and then build the plant around them. Inset, upper left, shows Patterson's design for tall, slender and streamlined utility poles which will be produced in the new plant.

School's in!

A course on the operation of the Autojack Electromatic Tamper with Autoliner — a key unit in maintaining railway track — is given in the training room of the Tamper plant in Columbia, South Carolina, to a group from Mexico by A. Bygate, Export Sales Manager, Tamper. Left to right: Messrs. Bygate, Roberto Hinojo of the Chihuahua Pacifico Railway, Venancio Rojo Gomez of the National Railways of Mexico, and Rene Probst from Tamper's Mexican agent.

Traction motors, manufactured by Canron's Electrical Division, power these French-built cars on a cog-railway in Greece. The small car in the center has a diesel engine-driven generator for the supply of electricity to the passenger cars.



Ground checks for the famous T400 Twin Pac helicopter engines are provided with this mobile test stand manufactured by United Aircraft of Canada Ltd., Longueuil, Quebec. In the field, the mobile test stand makes it possible to run a complete check on all engine systems. The Twin Pac power package, a twin-engine development, has an emergency take-over system to keep the helicopter stable in case one engine fails. It is used on both civilian and military 'copters. Specified throughout the test stand are Parker-Hannifin stainless steel fittings, Republic valves and Lord vibration mounts — all from Canron's Railway & Power Engineering Corporation.

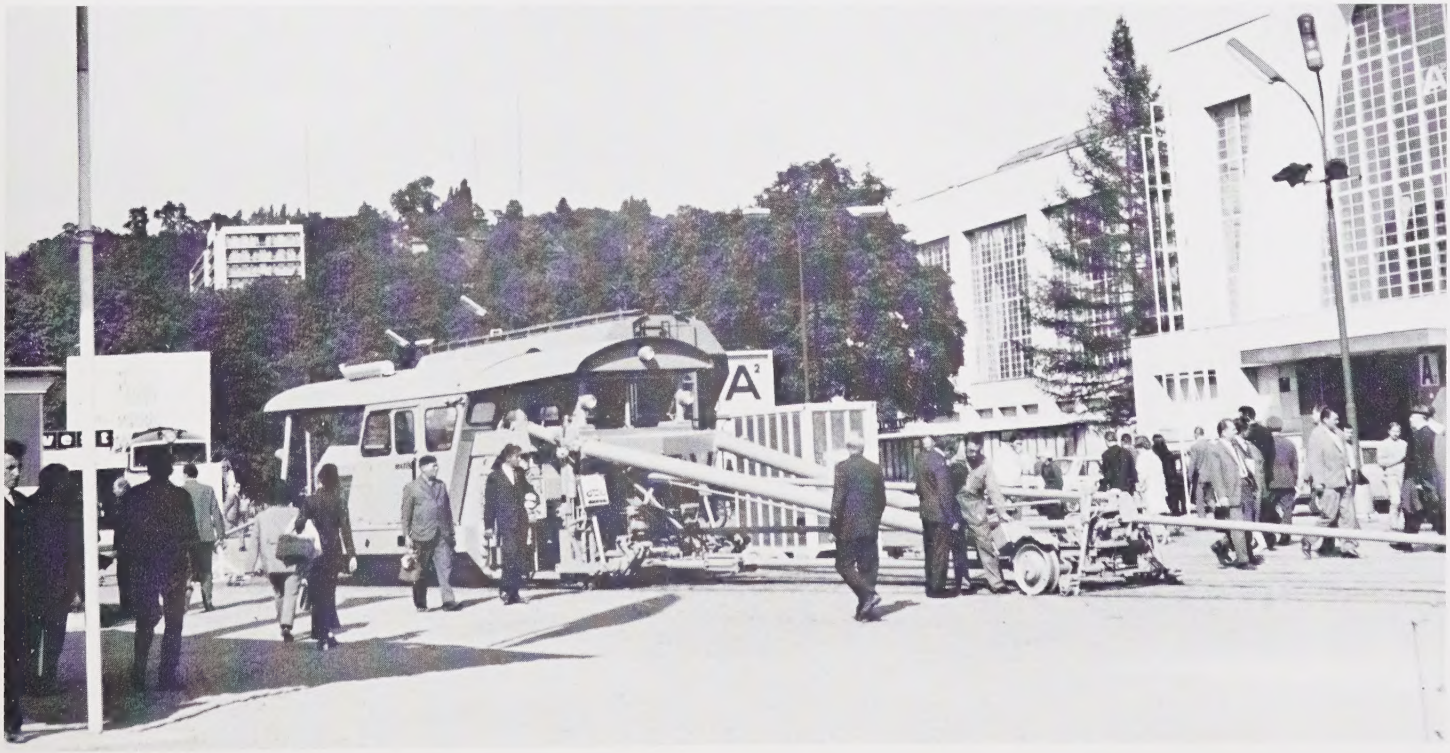
Until you lose your car-keys down one of those gratings, you're hardly aware of their existence. At Canron's Foundry Division in St. Thomas, Ontario, however, frame and grate castings account for a considerable volume of business. The Ontario Department of Highways uses thousands of these gray iron castings every year, and both the material and workmanship must meet rigid specifications and undergo close physical inspection. Many of these 500-lb. sets will be used for drainage on superhighways, such as 401, 403, and the Queen Elizabeth Way.

Canron & Matisa at Czech Industrial Fair

Railway track maintenance equipment from Canron's Railway Division, and Matisa Matériel Industriel, a Swiss subsidiary of Canron, was one of the great attractions for eastern bloc engineers visiting the famous Czechoslovakian Industrial Fair at Brno in September.

Star performers at the Canron-Matisa stand were a Matisa Tamper-Leveller-Liner, Canron's Autojack Electromatic Tamper with Autoliner, and a Matisa Tie Renewer. All three machines were sold, and an order for another Tamper-Leveller-Liner is anticipated.

The exhibit, manned by representatives of Matisa and its Czechoslovakian agents, Zenit, drew visitors from Poland, Hungary, Eastern Germany, and many centres in Czechoslovakia. At present, Czechoslovakian railways are using seven Electromatics, two Matisa Tamper-Leveller-Liners, and a Matisa Tie Renewer.



SCENE-STEALERS — At the Czechoslovakian Industrial Fair in Brno last September, all three machines displayed by Canron and its subsidiary, Matisa Matériel Industriel, Switzerland, carried "SOLD" tags before the fair was over. Above: Canron's Autojack Electromatic Tamper with Autoliner; Matisa Tie Renewer in foreground. Below: Matisa's Tamper-Leveller-Liner.

Tight Schedule for Rail Bridge Changeover

For Canron field forces, replacing five old spans on a railway bridge with five new welded plate girders would usually be a routine assignment. But in the case of the CP Rail bridge at Thamesford, Ontario, complications entered the picture when CP Rail stipulated that first, Canron would be allowed only five hours out of the 24 to remove and replace one span; and second, that the complete change-over had to be executed within five days.

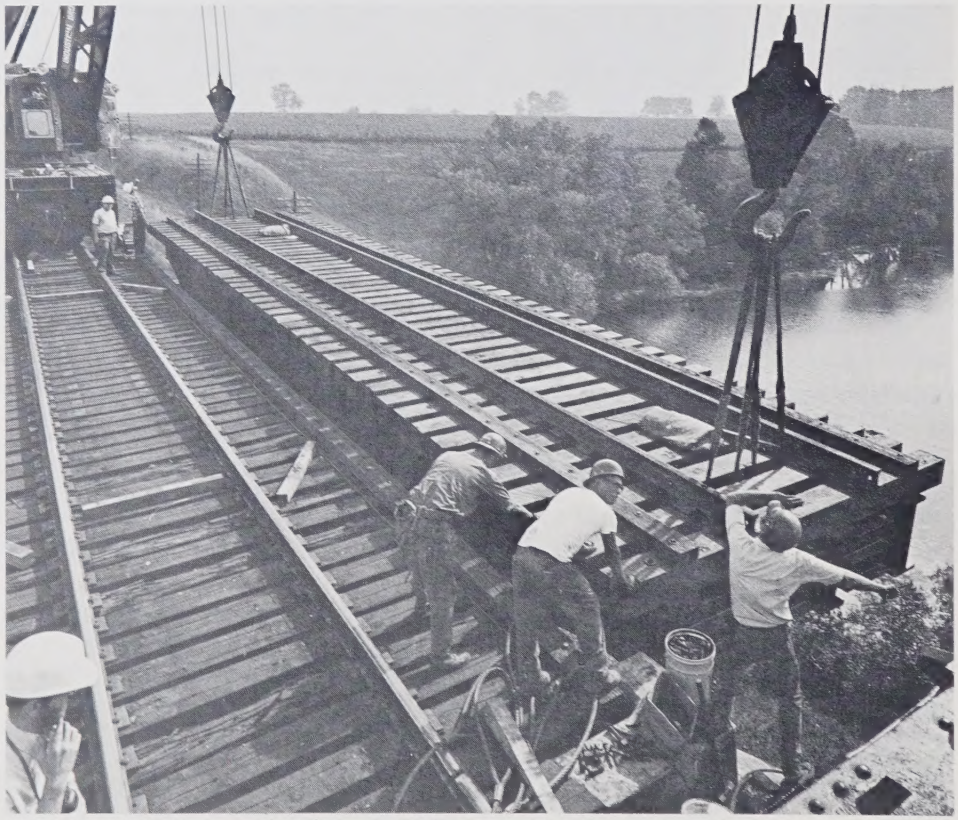
Fortunately, however, there was ample time for the advance preparations. As a first step, the crews on the jobsite erected 20 tons of falsework, on both sides of the bridge, to hold the old and the new spans during the change-over.

Meanwhile, a quarter of a mile away, Canron set up an assembly area to put together three 60-ft. plate girder spans, each weighing 60 tons, and two 30-ft., 25-ton girder spans. When everything was ready for the signal that the first five hours would be starting, two 200-ton travelling railway cranes moved into position to pick up one new girder.

Over the next five hours, everything moved with precision. The cranes lifted the new girder between them, trundled it to the bridge, lowered it to the falsework and let it rest there. Next, the cranes picked up the old span and swung it onto the falsework opposite; then they swivelled, picked up the new girder and dollied it into position.

Finally, after the rails on the new span had been bolted to the matching rails, the cranes once more picked up the old span, and transported it back to the assembly area. From then on, it was only a matter of repeating the procedure to change the new spans for the old. After that, all that remained was the clean-up job.

TWO 200-TON CRANES manoeuvre a 60-ton welded bridge girder into position as Canron erection crews, working on a tight time schedule, replace the old spans of a CP Rail bridge at Thamesford, Ontario.



LOWER AWAY! New welded plate girder for CP Rail bridge at Thamesford, Ontario, is eased onto temporary supports as Canron erection crews race the clock to replace an old bridge-span.

CANRON LIMITED

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